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EXAMINER	
ROBINSON BOYCE, AKIBA K	

ART UNIT	PAPER NUMBER
3623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/593,118	DREW ET AL.	
	Examiner	**Art Unit**	
	Akiba K Robinson-Boyce	3623	MW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Due to correspondence filed 2/25/04, the following is a final office action. Claims 9, 24, 31, 39, 50 and 54 have been amended. Claims 61-65 have been added. Claims 1-65 are pending in this application and have been examined on the merits. The previous office action has been maintained with the exception of minor changes to further clarify the rejection as requested by the applicant, and the addition of the rejection for new claims 61-65.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of :

(1) whether the invention is within the technological arts; and

(2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena that do not apply, involve, use, or advance the technological arts fail to promote the "progress of science and the useful art" (i.e., the physical sciences as

opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a process claim, the recited process must somehow apply, involve, use, or advance the technological arts.

In the present case, claims 1-15 are directed to a method for evaluating customer value to guide loyalty and retention programs. Independent claim 1 recites the steps of "calculating an individual customer's tenure...", "generating a hazard function...", "calculating a gain in lifetime value...", and "determining a focus for a loyalty and retention program...". These steps represent mere ideas in the abstract since they do not involve physical and/or computer means, or instructions embodied in a tangible medium to carry them out. Since no physical and/or computer means, or instructions embodied in a tangible medium are used to carry out the steps of the invention, these steps are not within the technological arts, and independent claim 1 and the claims that depend from them are therefore found to be non-statutory subject matter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 4, 13, 16, 18, 19, 28, 31, 33, 34, 43, 46, 48, 49, 58, 61-65, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Bank Marketing International article entitled "Are your customers profitable?"

As per clams 1, 16, 31, 46, 61, Bank Marketing international's article discloses:

Calculating an individual customer's tenure based on attributes relating to a plurality of current customer accounts, /a calculating module.../means for calculating...(page 2, paragraph 6, lines 1-3, paragraph 13, lines 1-2, [customers being grouped/segmented]and identifying the sales of each product by tenure]);

Generating a hazard function for each of a plurality of new customers to determine probability of churn based on the individual customer's tenure, /a generating module.../means for generating...(Page 2, paragraph 14, lines 1-3, [predicting the length of time a customer is likely to stay with it]).

Calculating a gain in lifetime value for each of the plurality of new customers, (Page 2, paragraph 11, lines 1-3, paragraph 12, lines 1-3,/a calculating module/means for calculating... [looking at estimated lifetime value]);

And determining a focus for a loyalty and retention program based on at least one of the hazard function and gain in lifetime value for each of the plurality of new customers,/a determining module.../means for determining...(Page 3, paragraph 2, lines 1-3, paragraph 3, lines 1-3 and page 4, paragraph 5, lines 6-9, [changing the policy]);

As per claims 3, 18, 33 and 48, the Bank Marketing International article discloses:

Analyzing the shape of the hazard function generated for each of the plurality of new customers, (Page 2, paragraph 14, lines 1-2, paragraph 15, lines 1-2, [where the hazard function is represented through the lifetime in the equation]);

And specifying a set of marketing techniques based on the shape of the hazard function...(Page 3, paragraph 2, line 1-3 and paragraph 3, lines 1-3, [where the marketing techniques are represented by the bank changing its policy through analysis of the equation]).

As per claims 4, 19, 34 and 49, the Bank Marketing International article discloses:

Specifying a set of incentives offered to the plurality of new customers based on the gain in lifetime value, (Page 4, paragraph 5, lines 6-9, [represented by offering a lower price]).

As per claims 13, 28, 43 and 58, the Bank Marketing International article discloses:

Determining that value of the set of incentives offered to each of the plurality of new customers does not exceed the gain in lifetime value, (page 4, paragraph 5, lines 6-9 [represented by offering a lower price, or dropping a charge by knowing the lifetime value and still making a good return]).

As per claim 62, Bank Marketing discloses:

Implementing the loyalty and retention program based on the determined focus, (Page 4, paragraph 4, lines 6-9, [offering lower rice, bundled services, dropping a charge in response to knowing the lifetime value of a customer]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, 5, 6, 14, 15,17, 20, 21, 29, 30, 32, 35, 36, 44, 45, 47, 50, 51, 59, 60, 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over by the Bank Marketing International article entitled "Are your customers profitable?", and further in view of Sanders (6,411, 936) in further view of Canfield, R. V. "Cost Optimization of periodic preventive maintenance", IEEE Transactions on Reliability".

As per claims 2, 17, 32, 47, Bank Marketing International discloses:

Calculating a lifetime value/calculating the gain in lifetime value...(Page 2, paragraph 11, lines 1-3, paragraph 12, lines 1-3, Page 3, paragraph 10, lines 1-3, Page 4, paragraph 10, lines 1-3, [looking at estimated customer lifetime value, where the value is calculated from attributes such as profitability]);

The Bank Marketing International article fails to disclose the following, however Sanders discloses:

based on contract terms and revenue generated for each of the plurality of new customers/considering a new contract period/determining...there is no effect on churn of a contract expiration, (Col. 11, line 44-Col. 12, line 10, [determining lead generation by using contract value]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to use the contract terms and revenue to calculate the lifetime

value with the motivation of determining which customers are bound to an agreement for specified periods of time and using this information to truly calculate how long a customer will be a customer and how much revenue that customer can pull in for that determined time.

Both Bank marketing and Sanders fail to disclose based on a hazard function.

However, however Canfield, R.V. discloses:

based on the shape of the hazard function, (Abstract, lines 9-20, [represented by results for the shape of the hazard function]).

It would have been obvious to one of ordinary skill at the time of the applicant's invention to base the lifetime value on the shape of the hazard function with the motivation of supplying a visual form for determining this lifetime value information.

As per claims 5, 20, 35 and 50, Bank Marketing International article fails to disclose effect on churn of a contract expiration, however Sanders discloses effect on churn of a contract expiration, (Col. 11, line 44-Col. 12, line 10, [determining lead generation by using contract value]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to use the contract terms and revenue to calculate the lifetime value with the motivation of determining which customers are bound to an agreement for specified periods of time and using this information to truly calculate how long a customer will be a customer and how much revenue that customer can pull in for that determined time.

Neither Bank Marketing or Sanders et al disclose the following, however Canfield, R.V. discloses:

based on the shape of the hazard function, (Abstract, lines 9-20, [represented by results for the shape of the hazard function]).

It would have been obvious to one of ordinary skill at the time of the applicant's invention to base the lifetime value on the shape of the hazard function with the motivation of supplying a visual form for determining this lifetime value information.

As per claims 6, 21, 36, 51, the Bank Marketing International article discloses:

Taking no further steps to deter churn, (Page 2, paragraph 10, line 2, [finding alternative banking arrangements]).

As per claims 14, 15, 29, 30, 44, 45, 59, 60, the Bank Marketing International article fails to disclose the following, however Sanders discloses:

Clustering all of the hazard functions for each of the plurality of new customers so that hazard functions with similar shapes can be grouped together/determining, based on the overall shape of the clustered hazard functions, what retention efforts to take to keep a new customer, (Col. 17, lines 48-52, [represented by clusters of elemental information]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to cluster all of the hazard functions for each of the plurality of new customers with the motivation of determining the average solution for keeping a customer.

As per claim 63, Bank Marketing discloses:

Identifying a temporal-based retention effort based on the hazard function for each of the plurality of customers, (Page 4, paragraph 4, lines 6-9, [offering lower price, bundled services and dropping a charge]) ;

Calculating, for each of the plurality of customers, an expected gain in value from the identified retention effort, (Page 2, paragraphs 9-12, [calculating lifetime value through changing from a traditional acquisition focus to one based on retention and acquisition]); and

Determining a focus for customer interaction based on the expected gain in value, (Page, 3, paragraphs 1-3, [identifying customers to whom it is worth allocating and making decisions about how to build a customer profile]).

Bank Marketing does not specifically disclose generating, for each of a plurality of customers, a hazard function to determine a probability of churn for each customer, the hazard function based on attributes relating to customer account information, but does disclose the identification of defection characteristics, unprofitable customers, propensity scores and potential product purchase gaps on Page 3, paragraphs 8-10.

However, Canfield discloses a hazard function, (Abstract, lines 9-20, [represented by results for the shape of the hazard function]). Canfield discloses this limitation for the purpose of implementing preventative maintenance.

It would have been obvious to one of ordinary skill at the time of the applicant's invention to base the lifetime value on the shape of the hazard function with the motivation of supplying a visual form for determining this lifetime value information.

As per claim 64, Bank Marketing fails to disclose generating a hazard function, based on a reference hazard function model, for each of the plurality of customers.

However, Canfield discloses:

Generating a hazard function, based on a reference hazard function model, for each of the plurality of customers, (Abstract, lines 11-14, developing a hazard function as a preventative maintenance model in order to reduce the operational stress of a new system]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to generate a hazard function, based on a reference hazard function model, for each of the plurality of customers with the motivation of slowing the rate of system degradation.

As per claim 65, Bank Marketing discloses:

Wherein the temporal-based retention effort comprises retention actions associated with a first time period and retention actions associated with a second time period, (Page, 3, paragraph 1, [assigning a rank order to the customer base, based on the lifetime value], Page 4, paragraph, therefore, the r 4, [offering lower price, bundled services, or dropping a charge according to the lifetime value represents the retention actions, where these actions are carried out at different time periods since they are implemented according to a ranked order]).

8. Claims 7, 8, 9, 10, 11, 12, 22, 23, 24, 25, 26, 27, 37, 38, 39, 40, 41, 42, 52, 53, 54, 55, 56, 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over by the Bank Marketing International article entitled "Are your customers profitable?", and

further in view of Canfield, R.V. , "Cost Optimization of periodic preventive maintenance", IEEE Transactions on Reliability", and further in view of Sanders (6,411,936).

As per claims 7, 9, 22, 24, 37, 39, 52, 54, the Bank Marketing International article fails to disclose the following, however Canfield, R.V. discloses:

determining, based on the shape of the hazard function, that there is a small increase in probability of churn...with an elevated post-expiration churn, /determining, based on the shape of the hazard function, that there is a large spike indicating high probability of churn...and low probability of churn thereafter, (Abstract, lines 9-20, represented by results for the shape of the hazard function, increase in probability of churn represented by system failure]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to base the lifetime value on the shape of the hazard function with the motivation of supplying a visual form for determining this lifetime value information.

Both Bank Marketing International and Canfield, R.V. fail to disclose the following, however Sanders discloses:

at contract expiration...(Col. 11, lines 44-52, [represented by the size of contracts]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have a contract expiration with the motivation of determining how long a customer will be a customer.

As per claims 8, 10, 11, 12, 23, 38, 25, 26, 27, 40, 41, 42, 53, 55, 57, both Bank Marketing International and Canfield, R.V. fail to disclose the following, however Sanders discloses:

Having a moderate pre-expiration effort where new contracts or continued contracts are the goal/ concentrating effort on pre-expiration of contract where a contract renewal may not be required/having high intensity pre-expiration effort with continued competitive offers to maintain customer/determining, based on the shape of the hazard function, that there is a large increase in probability of churn at expiration with high and increasing post-expiration probability of churn, (Col. 11, line 66-Col. 12, line 6, [represented by yielding to a group of low profit contracts that are listed as a separate category]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to produce new or continued contracts with the motivation of keeping dedicated customers.

Response to Arguments

9. Applicant's arguments filed 9/12/03 have been fully considered but they are not persuasive.

As per claims 1-15, the applicant argues that the 35 U.S.C. 101 rejection. The applicant argues that the two-prong test used in rejecting claims 1-15 is improper. However, the United States Constitution under Art. I, §8, cl. 8 gave Congress the power to "[p]romote the progress of science and useful arts, by securing for limited times to

authors and inventors the exclusive right to their respective writings and discoveries". In carrying out this power, Congress authorized under 35 U.S.C. §101 a grant of a patent to "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition or matter, or any new and useful improvement thereof." Therefore, a fundamental premise is that a patent is a statutorily created vehicle for Congress to confer an exclusive right to the inventors for "inventions" that promote the progress of "science and the useful arts". The phrase "technological arts" has been created and used by the courts to offer another view of the term "useful arts". See *In re Musgrave*, 167 USPQ (BNA) 280 (CCPA 1970). Hence, the first test of whether an invention is eligible for a patent is to determine if the invention is within the "technological arts".

Further, despite the express language of §101, several judicially created exceptions have been established to exclude certain subject matter as being patentable subject matter covered by §101. These exceptions include "laws of nature", "natural phenomena", and "abstract ideas". See *Diamond v. Diehr*, 450, U.S. 175, 185, 209 USPQ (BNA) 1, 7 (1981). However, courts have found that even if an invention incorporates abstract ideas, such as mathematical algorithms, the invention may nevertheless be statutory subject matter if the invention as a whole produces a "useful, concrete and tangible result." See *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F.3d 1368, 1973, 47 USPQ2d (BNA) 1596 (Fed. Cir. 1998).

This "two prong" test was evident when the Court of Customs and Patent Appeals (CCPA) decided an appeal from the Board of Patent Appeals and Interferences (BPAI). See *In re Toma*, 197 USPQ (BNA) 852 (CCPA 1978). In *Toma*, the court held

that the recited mathematical algorithm did not render the claim as a whole non-statutory using the Freeman-Walter-Abele test as applied to *Gottschalk v. Benson,* 409 U.S. 63, 175 USPQ (BNA) 673 (1972). Additionally, the court decided separately on the issue of the "technological arts". The court developed a "technological arts" analysis:

> The "technological" or "useful" arts inquiry must focus on whether the claimed subject matter...is statutory, not on whether the product of the claimed subject matter...is statutory, not on whether the prior art which the claimed subject matter purports to replace...is statutory, and not on whether the claimed subject matter is presently perceived to be an improvement over the prior art, e.g., whether it "enhances" the operation of a machine. *In re Toma* at 857.

In *Toma*, the claimed invention was a computer program for translating a source human language (e.g., Russian) into a target human language (e.g., English). The court found that the claimed computer implemented process was within the "technological art" because the claimed invention was an operation being performed by a computer within a computer.

The decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* never addressed this prong of the test. In *State Street Bank & Trust Co.,* the court found that the "mathematical exception" using the Freeman-Walter-Abele test has little, if any, application to determining the presence of statutory subject matter but rather, statutory subject matter should be based on whether the operation produces a "useful, concrete and tangible result". See *State Street Bank & Trust Co.* at 1374. Furthermore, the court found that there was no "business method exception" since the court decisions that purported to create such exceptions were based on novelty or lack of enablement issues and not on statutory grounds. Therefore, the court held that "[w]hether the

patent's claims are too broad to be patentable is not to be judged under §101, but rather under §§102, 103 and 112." See *State Street Bank & Trust Co.* at 1377. Both of these analysis goes towards whether the claimed invention is non-statutory because of the presence of an abstract idea. Indeed, *State Street* abolished the Freeman-Walter-Abele test used in *Toma*. However, State Street never addressed the second part of the analysis, i.e., the "technological arts" test established in *Toma* because the invention in *State Street* (i.e., a computerized system for determining the year-end income, expense, and capital gain or loss for the portfolio) was already determined to be within the technological arts under the *Toma* test. This dichotomy has been recently acknowledged by the Board of Patent Appeals and Interferences (BPAI) in affirming a §101 rejection finding the claimed invention to be non-statutory. See *Ex parte Bowman*, 61 USPQ2d (BNA) 1669 (BdPatApp&Int 2001).

As per claims 1, 3, 4, 13, 16, 18, 19, 28, 31, 33, 34, 43, 46, 48, 49 and 58, the applicant argues that these claims are not anticipated by Bank Marketing and argues that the Bank Marketing article fails to teach "calculating a gain in lifetime value for each of the plurality of new customers" and argues that evaluating estimated customer lifetime value (LTV) in the Bank Marketing article is not the same as calculating a gain in lifetime value for each of a plurality of new customers. However, as described in the previous office action, if one evaluates the estimated customer lifetime value and determines that the customer should stay within the organization for development purposes, as shown as one of the options in the bank Marketing article (Paragraph 11, page 2), the result of this evaluation is a gain calculation since the long term value is

determined through determining the process of changing from just a traditional acquisition focus to one based on retention *and* acquisition (since retention is added to the equation).

The applicant also argues that the Bank Marketing article fails to disclose the "determining" step in claim 1. Here, claim 1 recites "determining a focus for loyalty and retention program based on at least one of the hazard function and gain in lifetime value for each of the plurality of new customers". The applicant states that even if Bank Marketing mentions identifiable profits and policy change determinations, which represents the focus for loyalty to customers who bank with that particular bank, according to applicant, such a functionality does not constitute "determining a focus for loyalty and retention program based on ...the gain in lifetime value for each of the...customers". First, as described in the previous office action, when the profitability ratings are applied and analyzed, it leads to an increase in identifiable segment-of-one profits as shown in the bank Marketing article (Page 3, paragraph 3). This increase of profits leads to a determination that the bank's policy should be changed to "no fees anytime, anywhere, to anyone" to a more information-driven criteria, which represents the focus for loyalty to customers who bank with that particular bank. In addition, Bank Marketing discloses the gain in lifetime value as described by page 2, paragraphs 11 and 12 where the customer's long-term value to the bank is looked at in order to determine the customer lifetime value through the process of changing from just a traditional acquisition focus to one based on retention *and* acquisition, thereby making it a gain calculation since retention is added to the equation.

As per independent claims 16, 31 and 46, these claims recite subject matter that parallels subject matter recited in rejected clam 1 and are therefore still rejected for the same reasons as disclosed with respect to claims 16, 31, and 46.

As per claims 3, 4, 13, 18, 19, 28, 33, 34, 43, 48, 49 and 58, these claims depend from rejected claims 1, 16, 31 and 46 and are therefore rejected for the same reasons as disclosed with respect to claims 1, 16, 31 and 46.

In addition, the applicant argues that Canfield is nonanalogous art and therefore an improper reference against Applicants' claimed invention since Canfield is directed to reliability theory within the context of maintenance engineering and according to applicant, dissimilar to a system that evaluates customer value to guide loyalty and retention programs. However, Canfield discloses periodic preventative maintenance by using a hazard function to determine if the system will degrade. This relates to basing a lifetime value on the shape of a hazard function since in Canfield, when the hazard function changes, this change determines the lifetime value of the system according to if it will degrade with time or not. For at least this reason, the rejection of claims 2, 5, 6, 14, 15, 17, 20, 21, 29, 30, 32, 35, 36, 44, 45, 47, 50, 51, 59 and 60 based on Bank Marketing, Sanders and Canfield are maintained.

As per claims 2, 5, 6, 14, 15, 17, 20, 21, 29, 30, 32, 35, 36, 44, 45, 47, 50, 51, 59 and 60 the applicant argues that the rejection to these claims is ambiguous. Since the applicant's can not discern how the examiner is applying Canfield, the examiner has therefore clarified the rejection so that Canfield is specifically applied to claims 5, 20, 35 and 50, instead of combining with claims 2, 17, 32 and 47. The examiner has

separated the rejection of these claims for the purpose of clarifying the rejection to the applicant, but has not changed the basis for the rejection since the content of claims 2, 17, 32, 47 and 5, 20, 35 and 50 are the same.

Since dependent claims 2, 5, 6, 14, 15, 17, 20, 21, 29, 30, 32, 35, 36, 44, 45, 47, 50, 51, 59 and 60 include all of the elements recited in base claims 1, 16, 31 and 46, respectively, and Bank Marketing discloses all of the limitations recited in the base claims, Bank Marketing also discloses all of the limitations in the dependent claims listed above, and the Bank Marketing reference therefore still applies.

With respect to claim 2, 5, 6, 14, 15, 17, 20, 21, 29, 30, 32, 35, 36, 44, 45, 47, 50, 51, 59 and 60, the applicant also argues that neither Sanders nor Canfield, nor any combination thereof, cures all of the deficiencies of Bank Marketing. Specifically "calculating a gain in lifetime value for each of the plurality of new customers", and "determining a focus for loyalty and retention program based on at least one of the hazard function and gain in lifetime value for each of the plurality of new customers; and determining a focus for a loyalty and retention program based on at least one of the hazard function and gain in lifetime value for each of the plurality of new customers". In this case, the increase in profitability is the basis for value enhancement of the bank. In addition, Bank Marketing discloses the "calculating…" limitation. As described in the previous office action, if one evaluates the estimated customer lifetime value and determines that the customer should stay within the organization for development purposes, as shown as one of the options in the bank Marketing article (Paragraph 11, page 2), the result of this evaluation is a gain calculation since the long term value is

determined through determining the process of changing from just a traditional acquisition focus to one based on retention *and* acquisition (since retention is added to the equation). Also, as described in the previous office action, when the profitability ratings are applied and analyzed, it leads to an increase in identifiable segment-of-one profits as shown in the bank Marketing article (Page 3, paragraph 3). This increase of profits leads to a determination that the bank's policy should be changed to "no fees anytime, anywhere, to anyone" to a more information-driven criteria, which represents the focus for loyalty to customers who bank with that particular bank.

With respect to claims 2, 17, 32 and 47, the applicant argues that Bank Marketing fails to disclose "...based on contract terms and revenue generated for each of the plurality of new customers; and ...considering a new contract period" or "determining...there is no effect on churn of a contract expiration". However, as described in the rejection, Sanders discloses this limitation in col. 11, line 44-Col. 12, line 10, where lead generation is determined by using contract value. The applicant also argues that there is no motivation to combine Bank Marketing with Sanders. However, the motivation to combine the two is the fact that Sanders deals with the generation of value enhancement solutions and Bank marketing is directed towards analyzing customer behavior in order to increase profitability. Since increasing profitability is a value enhancement solution, there is motivation to combine Bank Marketing and Sanders.

With respect to claims 5, 20, 35 and 50, the applicant argues that neither Bank Marketing nor Sanders discloses; "based on the shape of the hazard function", and the

applied reference, Canfield is not a proper reference. However, Canfield discloses this limitation in the abstract, lines 9-20 where the results for the shape of the Hazard function is disclosed. As described above in the preceding paragraphs, Canfield is a proper reference since it discloses periodic preventative maintenance by using a hazard function to determine if the system will degrade. This relates to basing a lifetime value on the shape of a hazard function since in Canfield, when the hazard function changes, this change determines the lifetime value of the system according to if it will degrade with time or not.

Claims 6, 21, 36, and 51 depend from claims 5, 20, 35 and 50, and are rejected for the same reasons as discussed above with respect to claims 5, 20, 35 and 50.

As per claims 14, 29, 44 and 59, the applicant argues that neither Bank Marketing, Sanders, nor Canfield disclose "clustering all of the hazard functions for each of the plurality of new customer so that hazard functions with similar shapes can be grouped together" and "determining, based on the overall shape of the clustered hazard functions, what retention efforts to take to keep a new customer" as recited in claims 15, 30, 45 and 60. However, the combination of Bank Marketing, Sanders, and Canfield discloses these features. First, "clustering all of the hazard functions for each of the plurality of new customer so that hazard functions with similar shapes can be grouped together" is represented in Sanders. Sanders discloses that clusters of elemental information are formed in Col. 17, lines 48-52. When combined with the Canfield reference, the hazard function comes into effect. Canfield discloses that the shape of the hazard function is used to achieve optimization and estimate system failure

(performance). Therefore, the Sanders reference shows that it is obvious to cluster information such as hazard function data in order to analyze system performance. In addition, "determining, based on the overall shape of the clustered hazard functions, what retention efforts to take to keep a new customer" is disclosed by the combination of Sanders and Canfield. Sanders discloses that the appropriate computations, associations and linkages for performance measures are determined in Col. 17, lines 48-52. These computations of clustered information represent the "determining" step since Sanders shows that the clusters are ultimately used to deliver recommended solutions for value enhancement of an enterprise. In this case, efforts to take to keep a new customer is a form of value enhancement. Also, as described above, in combination with Canfield, the hazard function is incorporated into the solution.

As per claims 7-12, 22-27, 37-42 and 52-57, the applicant argues that Canfield is nonanalogous art. However, as described above with respect to claims 5, 20, 35 and 50, Canfield is a proper reference. In addition, the applicant argues that claims 7-12 depend from independent claim 1, claims 22-27 depend from independent claim 16, claims 37-42 depend from independent claim 32, and claims 52-57 depend from independent claim 46, therefore, all dependent claims are still rejected for the same reasons as the dependent claims.

Further, with respect to claims 7, 9, 22, 37, 39, 52 and 54, the applicant argues that Canfield does not disclose "determining, based on the shape of the hazard function, that there is a small increase in probability of churn... with an elevated post-expiration churn; and determining, based on the shape of the hazard function that there is a large

spike indicating high probability of churn...and low probability of churn thereafter". However, this limitation is disclosed by Canfield in the abstract, lines 9-20 where results for the shape of the hazard function are disclosed and the increase in probability of churn is represented by system failure since churn occurs when there is a high risk of a customer going elsewhere. Upon system failure, there would be a high risk of customers or users leaving that system to go to another system.

As per claims 8, 10-12, 23, 38, 25-27, 40-42, 53, 55 and 57, the applicant argues that there is no motivation to combine the Bank Marketing, Canfield and Sanders references. However, as described above with respect to Bank Marketing and Sanders, the combination of these two references is valid since Sanders deals with the generation of value enhancement solutions and Bank marketing is directed towards analyzing customer behavior in order to increase profitability. Since increasing profitability is a value enhancement solution, there is motivation to combine Bank Marketing and Sanders. In addition, Canfield discloses periodic preventative maintenance by using a hazard function to determine if the system will degrade. This relates to determining a lifetime value based on the shape of a hazard function. In Canfield, when the hazard function changes, this change determines the lifetime value of the system according to if it will degrade with time or not, thereby effecting the value enhancement.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akiba K Robinson-Boyce whose telephone number is 703-305-1340. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 703-305-9643. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7238 [After final communications, labeled "Box AF"], 703-746-7239 [Official Communications], and 703-746-7150 [Informal/Draft Communications, labeled "PROPOSED" or "DRAFT"].

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

A. R. B.
May 20, 2004

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600